

I CLAIM:

- 1
2 1. A combination water filter and suction device
3 comprising:
4 a housing having a mounting surface for providing a
5 flush mount to an inside of a tub, below a fill
6 line of the tub;
7 said housing having an input orifice and an output
8 orifice, and a shape to enable complete
9 drainage;
10 said input orifice having a vertically oriented
11 porous faceplate; and
12 a removable filter mounted inside the housing,
13 thereby providing a suction device to intake all
14 the water in the tub from underwater, not on a
15 surface of the water, and to continuously filter
16 said water with a replaceable filter.
- 17 2. The apparatus of claim 1, wherein the mounting
18 surface further comprises a peripheral flange having a
19 drainage slot.
- 20 3. The apparatus of claim 2, wherein the input orifice
21 further comprises a rectangular shape, and the housing
22 further comprises a radiused semi-cylindrical shape to
23 provide insertability into a rectangular opening in a tub
24 and complete drainage of water in the housing.

1 4. The apparatus of claim 1, wherein the vertically
2 oriented porous faceplate further comprises a plurality of
3 holes at least about 25 holes per square inch, each hole
4 about .25 inches O.D.

5 5. The apparatus of claim 1, wherein the vertically
6 oriented porous faceplate further comprises a plurality of
7 holes per square inch and each hole having a diameter,
8 wherein hair cannot become entrapped in the holes with the
9 use of a pump that allows about 50 gallons per minute flow
10 and about 1 - 1 1/2 inch piping system.

11 6. The apparatus of claim 5, wherein the vertically
12 oriented porous faceplate further comprises a convex outer
13 surface to prevent body part entrapment.

14 7. The apparatus of claim 1, wherein the removable
15 filter further comprises an internal core, said core having
16 a plurality of holes with ascending size away from the
17 output orifice to allow an efficient use of a surrounding
18 filter, said surrounding filter holding less than seven
19 ounces of water after drainage.

20 8. The apparatus of claim 7, wherein the internal core
21 supports a secondary filter inside it.

22 9. The apparatus of claim 5, wherein the housing further
23 comprises a brace to reinforce the vertically oriented
24 porous faceplate.

1 10. In combination with a whirlpool bath, said whirlpool
2 bath having a tub, the tub having an inside surface, a
3 closed loop piping system, a water pump, output jets and a
4 suction device, the improvement comprising:

5 a housing having a flange for a flush mount on the
6 inside surface;
7 the housing having an input orifice comprising an
8 open wall contiguous with the inside surface,
9 and an output orifice;
10 the input orifice having a porous faceplate; and
11 a removable filter mounted inside the housing,
12 thereby providing a single combination filter
13 and suction device for the whirlpool bath.

14 11. The improvement of claim 10, wherein the housing
15 further comprises a drainage slot.

16 12. The improvement of claim 10, wherein the housing
17 further comprises a sloped rear panel to provide complete
18 drainage.

19 13. The improvement of claim 10, wherein the porous
20 faceplate further comprises an anti-hair entrapment design.

21 14. The improvement of claim 13, wherein the porous
22 faceplate further comprises a convex outer surface to
23 prevent body entrapment.

24 15. The improvement of claim 10, wherein the removable
25 filter further comprises an internal core having holes with

1 an ascending size pattern away from the output orifice to
2 provide an efficient use of a surrounding filter.

3 16. The improvement of claim 15, wherein the internal
4 core further comprises a secondary filter inside it.

5 17. The improvement of claim 10, wherein the housing
6 further comprises a support bracket to reinforce the porous
7 faceplate.

8 18. The improvement of claim 12, wherein the removable
9 filter further comprises a water retention of less than
10 seven ounces after draining.

11 19. A combination water filter and suction device for a
12 whirlpool bath, the device comprising:

13 housing means functioning to support a removable
14 filter means and provide an inlet opening
15 contiguous with an inner surface of the
16 whirlpool bath; and

17 faceplate means functioning to cover the inlet
18 opening and prevent body entrapment, hair
19 entrapment, and prevent accidental breakage
20 thereof.

21 20. The apparatus of claim 19, wherein the removable
22 filter retains less than seven ounces of water after
23 drainage.

24 21. A combination water filter and suction device for a
25 tub recirculation system, said suction/filter comprising:

1 a housing having a mounting surface for providing a
2 flush mount to an inside of a tub, below a fill
3 line of the tub;
4 said housing having an input orifice contiguous
5 with the inside of the tub;
6 said housing having an outlet port located behind
7 the mounting surface;
8 said input orifice having a vertically oriented
9 ventilated faceplate; and
10 a removable filter mounted inside the housing
11 having a connection to the outlet port, thereby
12 providing a suction device to intake all the
13 water in the tub from the underwater and to
14 continuously filter said water with a
15 replaceable filter.

16 22. The apparatus of claim 21, wherein the input
17 orifice further comprises a rectangular shape, and the
18 housing further comprises a radiused semi-cylindrical shape
19 with a forward sloping bottom to provide insertability into
20 a rectangular opening in a tub wall and a complete drainage
21 of water from the housing when the tub is empty.

22 23. The apparatus of claim 22, wherein the faceplate
23 further comprises a plurality of holes including drainage
24 holes along a bottom peripheral edge.

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1 24. The apparatus of claim 21, wherein the faceplate
2 further comprises a plurality of flow through holes
3 including drainage holes along a bottom edge thereof.

4 25. The apparatus of claim 24, wherein the faceplate
5 further comprises a peripheral ledge sized for an overlapped
6 fit around the mounting surface of the housing, and a
7 mounting magnet.

8 26. The apparatus of claim 21, wherein the faceplate
9 further comprises a plurality of structural fins on a back
10 side thereof, said fins sized to fit into a set of receiving
11 slots in the housing, thereby providing a resistance to
12 breakage of the faceplate.

13 27. The apparatus of claim 26, wherein the faceplate
14 further comprises a peripheral ledge to overlap the mounting
15 surface of the housing.

16 28. The apparatus of claim 27, wherein the faceplate
17 further comprises a mounting magnet having a location
18 opposite a housing receiver, thereby providing a pop off
19 mount for the faceplate.

20 29. The apparatus of claim 28, wherein the housing
21 receiver further comprises a magnet.

22 30. The apparatus of claim 21, wherein the removable
23 filter further comprises an internal core, said core having
24 a plurality of holes with ascending size away from the

1 output orifice to provide for an efficient flow of water
2 through a surrounding filter.

3 31. The apparatus of claim 30, wherein the internal
4 core further comprises a retainer for a treatment apparatus.

5 32. The apparatus or claim 31, wherein the treatment
6 apparatus further comprises a chemical tablet.

7 33. The apparatus of claim 21 wherein the housing
8 comprises a pop off connection for the removable filter from
9 the connection to the outlet port.

10 34. The apparatus of claim 33, wherein the pop off
11 connection further comprises an inward cant to an outlet
12 sidewall of the housing, said outlet sidewall containing the
13 outlet port.

14 35. The apparatus of claim 34, wherein the removable
15 filter further comprises a collar mountable in the outlet
16 port.

17 36. The apparatus of claim 35, wherein the outlet port
18 further comprises a safety/sanitation port having a
19 connection to ambient air, said connection ending at a
20 location above a water line of the tub, wherein the
21 operation of the recirculation system without the removable
22 filter allows the ambient air into the recirculation system,
23 thereby causing a cavitation.

1 37. The apparatus of claim 21, wherein the faceplate
2 further comprises a radiating slot pattern from a central
3 point of the faceplate.

4 38. In combination with a whirlpool bathtub system,
5 said whirlpool bathtub system having a closed loop piping
6 system, a water pump, output jets and a suction device, said
7 bathtub having an inner wall and a bottom, the improvement
8 comprising:

9 a housing having a mount for the inner wall;
10 the housing having an input orifice contiguous with
11 the inner wall and having an output port;
12 the input orifice having a flow through faceplate; and
13 a removable filter mounted inside the housing, thereby
14 providing a single combination filter and
15 suction device for the whirlpool bathtub system.

16 39. The improvement of claim 38, wherein the housing
17 further comprises a sloped bottom to provide complete
18 drainage when the whirlpool bathtub system is drained.

19 40. The improvement of claim 38, wherein the porous
20 faceplate further comprises a pop off attachment to the
21 housing.

22 41. The improvement of claim 40, wherein the pop off
23 attachment further comprises a magnet holding the faceplate
24 to the housing.

1 42. The improvement of claim 40, wherein the pop off
2 attachment further comprises a ledge around a periphery of
3 the faceplate.

4 43. The improvement of claim 42, wherein the pop off
5 attachment further comprises a magnet holding the faceplate
6 to the housing.

7 44. The improvement of claim 40, wherein the removable
8 filter has a pop off attachment to the housing.

9 45. The improvement of claim 44, wherein the pop off
10 attachment further comprises a canted outlet wall on the
11 housing, said canted outlet wall containing the output port.

12 46. The improvement of claim 45, wherein the removable
13 filter further comprises a mounting collar having an
14 alignment groove to receive an alignment ridge inside the
15 outlet port, and having a safety/sanitation port on the
16 outlet port to create a cavitation in the whirlpool bathtub
17 system when the removable filter is not properly mounted
18 inside the outlet port.

19 47. A combination water filter and suction device for a
20 whirlpool bath, the device comprising:

21 housing means functioning to support a removable
22 filter means and provide an inlet opening
23 contiguous with an inner surface of the
24 whirlpool bath; and

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1 faceplate means functioning to cover the inlet
2 opening and prevent body entrapment, prevent
3 hair entrapment, and prevent accidental breakage
4 thereof.

5 48. The apparatus of claim 47, wherein the faceplate
6 means further comprises a pop off design means functioning
7 to enable a user with hair entangles in the faceplate means
8 to easily pulloff the faceplate means to prevent drowning.

9 49. The apparatus of claim 47, wherein the removable
10 filter means further comprises a pop off design means
11 functioning to enable a user with hair entangled on the
12 removable filter means to easily pull off the removable
13 filter means.

14 50. The apparatus of claim 47, wherein the housing
15 further comprises an outlet port having a safety/sanitation
16 port means functioning to create cavitation if the whirlpool
17 bath is operated without the removable filter means.

18 51. The apparatus of claim 47, wherein the removable
19 filter means further comprises an anti-microbial surface.

20 52. The apparatus of claim 47, wherein the outlet port
21 has an ID of about 2" and a flow rate of about 200 GPM.

22 53. In combination with a whirlpool bathtub system,
23 said whirlpool bathtub system having a closed loop piping
24 system, a water pump, output jets and a suction device, said

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1 bathtub having an inner wall and a bottom, the improvement
2 comprising:

3 a housing integral with the inner wall;
4 the housing having an input orifice contiguous with the
5 inner wall and having an output port;
6 the input orifice having a flow through faceplate; and
7 a removable filter mounted inside the housing, a
8 housing integral with the inner wall, and
9 suction device for the whirlpool bathtub system.

10 54. The improvement of claim 53, wherein the housing
11 further comprises a sloped bottom to provide complete
12 drainage when the whirlpool bathtub system is drained.

13 55. The improvement of claim 53, wherein the porous
14 faceplate further comprises a pop off attachment to the
15 housing.

16 56. The improvement of claim 55, wherein the pop off
17 attachment further comprises a magnet holding the faceplate
18 to the housing.

19 57. The improvement of claim 53, wherein the pop off
20 attachment further comprises a ledge around a periphery of
21 the faceplate.

22 58. The improvement of claim 57, wherein the pop off
23 attachment further comprises a magnet holding the faceplate
24 to the housing.

1 59. The improvement of claim 53, wherein the removable
2 filter has a pop off attachment to the housing.

3 60. The improvement of claim 59, wherein the removable
4 filter pop off attachment further comprises a canted outlet
5 wall on the housing, said canted outlet wall containing the
6 output port.

7 61. The improvement of claim 53, wherein the removable
8 filter further comprises a mounting collar having an
9 alignment groove to receive an alignment ridge inside the
10 outlet port, and having a safety/sanitation port on the
11 outlet port to create a cavitation in the whirlpool bathtub
12 system when the removable filter is not properly mounted
13 inside the outlet port.

14 62. A suction/filter for a suction drain in a jetted
15 spa or tub intended to reduce the risk that an occupant's
16 hair could become entangled within a water stream entering
17 the drain, comprising:

18 a base mountable to an interior surface of the tub or
19 spa, the base having a central opening which
20 communicates with the suction drain, said base
21 extending generally parallel to the underlying
22 spa surface and having a peripheral edge;

23 a cover having a face wall spaced from the base and a
24 sidewall extending from the face wall and having
25 a free peripheral edge contacting said base in

1 the region of its periphery to define a closed
2 chamber enclosing said opening, said face wall
3 and sidewall being perforated to act as a screen
4 in the way of entry of hair into the chamber.
5 an interior wall mounted within said chamber and
6 shaped to act as a flow directing vane with
7 respect to water entering the chamber and
8 passing through the opening to the suction drain
9 to resist the development of a water vortex
10 within said chamber, wherein the perforated
11 character of said walls and the water flow
12 across said interior wall within said chamber
13 resist entrapment of the occupant's hair within
14 the water stream entering the suction drain.
15 a second interior wall forming another vane extending
16 from the face wall of said cover toward said
17 base, wherein said second interior wall
18 intersecting with said first interior wall to
19 divide said cover into four portions, the total
20 area of the holes in each portion of said cover
21 equaling the total area of the holes in each
22 other portion of said cover; and
23 wherein said cover further comprises a slot which
24 receives a disposable filter.

1 63. A suction/filter assembly for reducing the
2 turbulence of water passing through the suction/filter
3 assembly into a suction drain, the suction/filter assembly
4 comprising:
5 a base having a central opening in communication with
6 the suction drain.
7 a cover including a face wall spaced from the base
8 and including a sidewall extending from the face
9 wall, the base configured to mate with the
10 sidewall to form a chamber between the cover and
11 the base, wherein at least the face wall or the
12 sidewall having holes therethrough to allow
13 passage of water through the safety cover.
14 at least one interior wall dividing the chamber into
15 a plurality of subchambers, each subchamber
16 allowing passage of water through the safety
17 cover assembly into the suction drain, whereing
18 the at least one interior wall includes a first
19 guide vane integrally formed on the base and
20 projecting towards the face wall, wherein the
21 second guide vane is configured to align with
22 and about the first guide vane; and
23 wherein said cover further comprises a slot which
24 receives a disposable filter.